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ABSTRACT

In 1973, the Technological Institute Library, along with the other science libraries of Northwestern University, began a study of reference use. For each reference request received in the libraries, the date, time, duration, mode, class of question, and user type were noted. These statistics were tabulated and analyzed by computer. It was concluded that the overall complexity of questions asked in a science library is low and that few non-trivial reference requests are received during evening hours. The library is now seeking to replace some of its reference service with other forms of service. (PF)

HOW MANY REFERENCE LIBRARIANS ARE ENOUGH?

by William G. Jones, Librarian, Technological Institute Library,

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In the past year the science and engineering libraries of Northwestern University have been involved in planning a new library building to house their combined collections. One step in the planning process has been the formulation of a program specifying the level of staffing needed for the new library, and the work space required. A planning committee composed of faculty members and library staff was charged with developing the program. In the early stages of planning the library staff suggested to the planning committee that a level of reference service commensurate with that offered at the main university library would be a desirable goal. The response of the faculty members of the committee was immediate and unequivocal. They claimed that faculty and graduate students hardly relied on reference services at all, using the collection to obtain specifically-known publications, and that the use of the space in question would be more appropriately allocated to student seating or to stack area. As there was only a fixed number of square feet available, it was clear that providing more space for one kind of function meant less for some other kind. The library staff determined to test the validity of the committee's assumptions by measuring use of present levels of reference service.

Therefore in September the Technological Institute Library, in collaboration with other science libraries on the Northwestern campus, undertook a one-year survey of science library reference use. After the first three months, 1,550 forms for recording questions, which excluded trivial questions, were coded, key-punched, and tabulated using the SPSS (Statistical Package for the Social Sciences) computer program. Fifty tables were produced showing relationships of variables and variation within participating libraries.

The same procedure was performed after the second three months, and will be again after the third three months, and after a year's data are collected. The goal of this paper is to describe the policy questions which prompted the survey, to explain how these considerations influenced its design, and to summarize our principal findings and their impact on policy.

All those involved in the provision of reference services, and these included classified staff as well as librarians, were asked to fill out forms for recording all non-trivial reference questions directed to them. Hatchmark counts were kept of those deemed trivial so that a record of all information-seeking interactions was maintained. The dimensions of reference service we chose to measure were these:

Date of interaction: For placing the interactions in the context of the school term, in order to detect curriculum-related fluctuations,, such as examinations and holidays.

Time interaction commenced:
For placing interactions within the daily routine in order to detect fluctuations within the day and by day of week.

Duration of interaction:
For estimating the relative complexity of the question and the total amount of time invested by the staff in reference.

Mode (telephone, onsite):
For estimating relative distribution of onsite requests to telephone requests and for observing the links between mode and utilization of reference services by on-campus and off-campus communities.

Class of question: For estimating types of reference service requested.

Name of reference person involved:
For possible analysis of variations in style by reference staff.

Class of user (faculty, grad student, undergraduate):
For estimation of reference utilization by academic community.

Affiliation of user (department, business and industry, private):
For further analysis of user communities.

Other library: For estimation of our sharing of reference resources and other libraries' reliance on us, both within and outside the university system.

Simply put, our goal was to create an accounting system in which the frequency of occurrence of these characteristics in reference interactions was recorded. The relevance and determination of the variables measured were directly related to the policy questions formulated at the beginning of the study. There were a number of other variables we might have chosen to measure, for example, user satisfaction, knowledge, and perception of library services, or the relationship of reference questions to curriculum requirements. However, there were obstacles to the seeking of this information in addition to its not being immediately relevant to our policy problems. As ours was a survey conducted with the cooperation of the staff who provided reference services, we had to consider the amount of time available to it for filling out reference forms as well as the amount of training and orientation which might be required to teach them to use lengthier and more complex schedules.

All of the information we asked our staffs to supply was recorded on a form which permitted easy numerical coding. The one judgment which presented problems was the classification of the reference interaction itself. In devising a taxonomy for representing reference processes we had no commonly established conventions which would have been readily understood both by our participating reference staff and by others reviewing our results, such as we had when we referred to library users as being "faculty," "staff," "graduate students," or undergraduates." As there is not wide agreement on what constitutes reference, nor is reference something that is shared equally by all libraries, we established our categorization in terms of the principal services offered by our libraries. In the early design stages it seemed as if there were two promising approaches, either

to devise a system of logically-connected procedures which would reflect the strategy involved in negotiating the reference interaction or simply to partition the reference process into arbitrarily-defined units. The former method seemed to involve a lot of work, considerable sophistication, and to violate our goal of requiring modest effort from the participants. While such a system would have been of use in telling us how reference was done, our primary interest was in knowing what reference was done; consequently we chose the latter method. Using terms that were developed at Northwestern's Transportation Center Library, we wrote our own definitions, and added one new category, attempting to define each unambiguously. Our definitions were as follows:

Orientation:	Questions concerning some aspect of user orientation, either in the requester's own library, the University Library, or libraries in general. This included locations of books, or more complex questions requiring the reference person to train the requester in the use of indexes or abstracts.
Directory:	Information-seeking in which a datum or data were required, either numerical or biographical, but excluding bibliographic verification.
Topical:	Any question dealing with a specific area of inquiry. In general a question should have been classed as topical when the inquirer was unaware of the existence of specific titles or works or means of access which would have been of use to him.
Citation:	Any question requiring interpretation or verification of a specific citation, including correction of erroneous information, confirmation of existence of a publication, or precise expression of the bibliographic citation.
Holdings:	Any question of the "do you have" variety.

As problems arose concerning interpretation and classification, we eventually asked all reference staff to write thumbnail sketches of the question and left the coding of the question in the hands of one coder. We made notes of the way in which particular problems were coded so that future examples would always be coded in the same way. As not all questions merited recording,

we also had a class of trivial questions for those inquiries which could have been answered by almost anyone at all or by those with virtually no training in reference service. For questions that could be categorized in more than one way, we usually coded them in the more complex category.

With regard to establishing a satisfactory level of analysis and the determination of relevant tabulations, we made the best judgments we could on the basis of experience. When looking at distribution of requests for service by time of day, we chose to group the number of requests received into two-hour clusters. This seemed to work quite satisfactorily. In analyzing departmental affiliation, we ended up with tables of forty-cell rows, one cell for each department, really more than were necessary. In coding durati of interaction, we used a scale divided into fifteen-minute intervals. That was not sensitive enough because we had no way of distinguishing between interactions which took only one minute and those which took ten. The second and subsequent three months of data collection corrected this.

Given the way we actually recorded the data, we could always go back and recode the times at which the interaction began in order to produce more sensitive analyses, perhaps producing a table in which frequency was distributed by hours instead of two-hour periods. In the case of departmental affiliation we have the option of collapsing categories in order to reduce those tables with forty-cell rows to more manageable size, perhaps those on the grossest level, such as life sciences, engineering, humanities, and so on. Too much detail can obscure large-scale patterns as easily as too little detail can fail to reveal them. When the level of detail is more than needed, categories can always be collapsed, but the reverse is not possible.

In conclusion, we learned that the faculty planning committee members were correct in their view of use of reference services by faculty and

graduate students: that is, that faculty and graduate students do often know what they are looking for when they come to the Library in contrast to undergraduates. But graduate students and faculty clearly make use of reference services to inquire about library holdings, to seek assistance in the verification of citations, and actually to ask, from time to time, topical or directory questions. The strongest inference we feel justified in making is that the overall level of complexity of the questions received is of a very low order. Our analysis of the data we have for evening use suggests that while there is a high level of activity in the Library, the large majority of requests for information is of such a low order as to be classed as trivial. We feel we would hardly be justified in adding reference librarians to our staff for such a low level of demand.

We were also interested in the possibility of using classified staff in providing reference services, and have staffed our desks for some time with specially trained classified staff. Comparisons of the numbers of questions received by librarians and classified staff show little difference in distribution by type of question or duration. Those questions requiring advanced reference skills are so few in number as to be easily referred to a more experienced librarian when they do arise.

Of interest to us in the Technological Institute Library is the amount of service we provide to the outside business community. Over 10% of the non-trivial questions were from this sector, and 60% of these involved holdings. I think we may justifiably infer that our holdings are used eventually, either through inter-library loan requests or directly. We are aware that we have been of service to business, but were never in a position to document actual use.

In the largest terms, we are now asking ourselves whether the Library could not make a greater contribution to information dissemination on the campus by channeling its resources into other forms of service than reference.

As we would like to develop a public which could utilize libraries in a knowledgeable way, as well as to offer our library staff an organizational structure which permits them to develop their own skils, we are now considering placing greater emphasis on SDI systems, or devising more effective methods of self-orientation, including emphasis on talking-slide shows, or simply a more obvious floorplan. Whatever we decide, we now have a benchmark survey against which to compare the success of our efforts.

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CODEBOOK FOR SCIENCE-ENGINEERING LIBRARIES

REFERENCE SURVEY

Columns	Classification	Description	Code
1	Library name	Tech. Inst.	1
		Biology	2
		Astronomy	3
		Geology	4
		Mathematics	5
2-5	Request identification	(no. in sequence) . .	0001, 0002, e
6-9	Date	(day in numerical sequence	0001, 0002... 0365
10-11		Year	73, 74, etc.
12	Time of day	8-10:00 a.m..	1
		10-12	2
		12-2:00 p.m..	3
		2-4	4
		4-6	5
		6-8	6
		8-10	7
		10-12	8
13	Location	Onsite	1
		Telephone	2
		Letter	3
14	Class of question	Orientation	1
		Directory	2
		Topical	3
		Citation	4
		Holdings	5
		Other	6
15	NU affiliation	NU faculty	1
		NU staff	2
		NU grad	3
		NU undergrad.	4
16-17	Department of requestor	(Assignments given separately, 01, 02, 03, etc.)	
18	Non-NU affiliation	Non-NU faculty. . . .	1
		Non-NU student. . . .	2
19	Affiliation of Non-NU user	Business and Industry	1
		Nonprofit	2
		Other	3

Columns	Classification	Description	Code
20	Other library	NU	1
		Non-NU	2
21-22	Time required	1-3 minutes	.01
		4-6 minutes	.02
		7-9 minutes	.03
		10-14 minutes	.04
		15-29 minutes	.05
		30-44 minutes	.06
		45-59 minutes	.07
		Hours	.10,20,etc.
23-24	Monitor	(Assignments given separately, 01, 02, 03, etc.)	

N.B. This codesheet has been revised slightly from that originally used in order to facilitate its use by others. Fewer tables would be required if all classes of users (now coded in columns 15, 18, & 19) were coded as one variable.

FILE NONAME (CREATION DATE = 04/08/74)

CROSSTABULATION OF LIBRARY BY TYPEQUES CLASS OF QUESTION

LIBRARY	TYPEQUES 1.ORIENTATION	2.DIRECTORY	3.TOPICAL	4.CITATION	5.HOLDINGS	ROW TOTAL
1. TECH	101	65	52	107	231	556
	18.2	11.7	9.4	19.2	41.5	67.8
	69.7	61.3	46.0	66.5	78.3	
	12.3	7.9	6.3	13.0	28.2	
2. BIOLOGY	19	7	15	16	33	90
	21.1	7.8	16.7	17.8	36.7	11.0
	13.1	6.6	13.3	9.9	11.2	
	2.3	.9	1.8	2.0	4.0	
3. ASTRONOMY	11	12	17	14	11	65
	16.9	18.5	26.2	21.5	16.9	7.9
	7.6	11.3	15.0	8.7	3.7	
	1.3	1.5	2.1	1.7	1.3	
4. GEOLOGY	4	3	28	21	13	69
	5.8	4.3	40.6	30.4	18.8	8.4
	2.8	2.8	24.8	13.0	4.4	
	.5	.4	3.4	2.6	1.6	
5. MATH	10	19	1	3	7	40
	25.0	47.5	2.5	7.5	17.5	4.9
	6.9	17.9	.9	1.9	2.4	
	1.2	2.3	.1	.4	.9	
COLUMN TOTAL	145	106	113	161	295	820
	17.7	12.9	13.8	19.6	36.0	100.0

NUMBER OF MISSING OBSERVATIONS = 0

Handout for presentation of

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Key to table is provided in upper left-hand corner of matrix. Count = total freq. for a particular cell, e.g. 101 orientation questions in Tech. Library; Row % = percent calculated by row, e.g. 18.2% (or 101 questions) of all questions received in Tech. were orientation; Column % = percent calculated by column, e.g. 69.7% (or 101 questions) of all orientation questions received were in Tech.; Total % = percent of all questions received which are in a particular cell, e.g. 12.3% (or 101 questions) of all questions asked were in Tech. & were orientation.